10. Sasha

Program Name: Sasha.java **Test Input File: sasha.dat**

Sasha enjoys painting. He has been creating many wonderful pieces of art, so beautiful that the internet keeps stealing his artwork! He wants your help in identifying his artwork across the internet so it can be flagged to be taken down from the unauthorized sources. However, as people copy and share his art, the background tends to get cropped and the image keeps getting scaled to different sizes. This makes it harder for Sasha to automatically detect if an image is of his artwork or not.

Given two images, the first of which is Sasha's original work, and the second of which is an image from the web, determine if they are the same or different. All of Sasha's images consist of abstract shapes drawn with `'#'` and a background drawn with `'.'`. In the images across the web, sometimes the background is cropped a little different and the image has been scaled up or down by some amount. Sasha can tell if the web image is his original work if, when scaled and the background removed, the two abstract shapes are the same. Sasha's original work and the images on the web can be of any size, but they are always square in shape.

Input: An initial value N, followed by N data sets. Each data set has two square images, followed by two dashes: `"--"`. Each image is separated by a single dash: `'-'`. Each image is square in shape, made up of `'#'` and `'.'` characters. The first image of each pair is Sasha's original art work. The second image is the one found on the web.

Output: The word `"SAME"` if the two images contain the same abstract shape once scaled or translated, or `"DIFFERENT"` if they do not share the same abstract shape.

Sample Input:

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Sample Output:

```
SAME
DIFFERENT
SAME
```